Jointech from EVG and APMI

EV Group (EVG), manufacturer of MEMS and semiconductor wafer processing equipment, has concluded a multimillion dollar equipment purchase agreement with Asia Pacific Microsystems Inc of Taiwan. The order, which has already been shipped and successfully installed, forms part of a complete MEMS (micro-electro-mechanical systems) production line. APM is involved in the design and manufacturing of MEMS sensors and wireless communication components and inaugurated its MEMS wafer foundry in November last year.

Part of this order was for a fully automated EVG620 precision alignment and lithography system, two EVG150 automated resist processing systems, an EVG301 single wafer and mask cleaner and an EVG560 production wafer bonder for performing the most critical steps in microfabrication. Double-side alignment and wafer bonding (anodic, fusion, eutectic) play a significant role throughout the whole MEMS manufacturing processes at APM.

The MEMS sensor fabrication involves several process steps, which the EVG wafer processing systems can easily manage, due to the ability to handle various wafer sizes and materials. "We expect to see our volumes go up and now we have fully capable equipment to handle our volume requirements", says Prof. Star Huang, CTO and executive VP of APMI.

EVG formed a new JV company EVG-Jointech Corp with APM, in Taiwan, staffed with the regional representative company for EVG equipment in Taiwan. Major shareholder Tsemin Tsai, who has worked with EVG for many years, has been appointed as President of EVG-Jointech Corp. The expansion is a logical step to come closer to the Taiwanese customer base, which includes industrial MEMS foundries, advanced packaging production companies and key players in MEMS and semiconductors.

EVG-Jointech will be a core site for technology transfer and customer support. Dr. Peter Podesser, CEO of EVG said: "Our common goal is to work as closely as possible with customers by combining local expertise with the European knowledge base."

Partnering on InGaP

Philips Semiconductors and TriQuint Semiconductor, have signed a partnership that gives Philips controlled access to TriQuint's InGaP Heterojunction Bipolar Transistor (HBT) 150mm wafer processing fab, and provides for JD of future advanced high-performance process technologies.

This gives Philips important access to the technology-of-choice for critical components in the power amplifer and front end modules it designs and manufactures for mobile phones, ensuring TriQuint is a lead supplier for GaAs devices.

"Mobile phone manufacturers increasingly look to modules to simplify design and production process and guaranteeing RF performance," says Thierry Laurent, executive VP, business unit Mobile Communications at Philips Semiconductors. "In a module you have the opportunity to mix a range of technologies to offer customers the best price:performance ratio. We believe that InGaP HBT is the best technology in which to implement components such as the output stage of linear and high-efficient power amplifier and front-end modules."

"Philips' strong RF market presence offers us increased manufacturing volumes, starting with our current, 2G InGaP HBT process. This complements our strategy of driving for the lowest manufacturing cost structure," says Bruce Fournier, VP and GM of Foundry Services at TriQuint.

Collaboration has already resulted in a new W-CDMA PA module (BGY402, now sampling) and PA/FE modules for GSM phones from Philips. TriQuint is shipping PA products and offers this InGaP HBT process, as well as other GaAs processes to the market through its open foundry.

3D micro fabrication

A simple technique to generate three-dimensional microfabricated structures is reported by researchers at Massachusetts Institute of Technology. The approach involves the use of a patterned conductive template followed by an electrodeposition step. Expansion of the material, eg, polypyrrole, both vertically and horizontally occurs as it is deposited. The deposited film then bridges to new regions on the template forming an electrical connection with that region and deposition continues. This way, stepped 3-D structures, branched structures, tapered lines, concave and convex features can be formed. This technique opens the way to fabricate multilevel structures such as photonic lattices.

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Celeritek's active hire and passive free launch

Celeritek Inc has launched a power amplifier module using Passive-Free Technology (PFT). In what is claimed an industry milestone, Celeritek is the first to offer power amplifier modules for data enabled terminals and handsets that are free of passive components. The complete power amplifier module consists of a molded lead frame and InGaP HBT die. Competitors are claimed to require between 4 and 7 passive components within the package. Targeting 3G markets in Asia, North America and Europe, Celeritek's newest PFT module, the CHP2219-ML sets a new standard in cost, performance and integration for W-CDMA power amplifier modules.

The company has come under attack from an investor group called the Celeritek Shareholder Protective Committee. The group, made up of two individual shareholders and two Southern California investment firms, holds 10.26% of the stock and is seeking to oust Celeritek's board of directors.

In filings with the Securities & Exchange Commission, the group's biggest issue is that the company rebuffed a merger offer from Anaren Microwave, one of its customers, last year. Celeritek has retained Lehman Brothers, as financial advisor, and Wilson Sonsini Goodrich & Rosati, as outside legal counsel, to assist it explore enhancing shareholder value and advise the Board. It has created a lead independent director, William Rasdale, to liase between senior management and the board.